PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 345 - POLES AND FIXTURES

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ -	$ -
1922	7	-
1932	1,121	1,707
37	35	62
38	334	634
1941	7,319	9,799
42	2,076	2,471
1945 Net Additions	None	None
TOTAL	$ 10,892	$ 14,677

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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TRANSMISSION PLANT

ACCOUNT NO. 346 - OVERHEAD CONDUCTORS AND DEVICES

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 27,870	$ 37,828
13	4,852	7,901
14	16,508	26,154
1915	-	
16	303	705
17	21,699	20,217
18	114	78
19	-	-
1920	-	
21	-	
22	-	
23	276,344	294,235
24	64,230	75,379
1925	2,924	5,181
26	2,516	3,045
27	291	594
28	15,200	21,790
29	864	1,344
1930	5,269	7,260
31	136,079	183,483
32	13,164	25,814
33	1,925	1,202
34	160,087	248,969
1935	1,927	3,146
36	62,556	92,463
37	124,578	150,405
38	35,326	42,003
39	359	543
1940	7,501	8,694
41	-	
42	7,302	7,861
43	-	
44	-	
1945 Net Additions	(274)	(273)
TOTAL	$ 989,514	$ 1,266,021

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 349 - ROADS AND TRAILS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 1,439	$ 4,979
13	55	236
14	107	327
1915	39	19
16	199	701
17	-	-
18	-	-
19	43	66
1920	-	-
21	-	-
22	81	-
23	112	106
24	255	498
1925	-	-
26	72	46
27	-	-
28	41	60
29	-	-
1930	-	-
31	2,632	5,365
32	7,749	21,114
33	3	-
34	10,289	8,231
1935	-	-
36	165	246
37	1,620	2,528
38	426	819
39	-	-
1940	-	-
41	-	-
42	1,765	2,167
43	7,908	8,908
44	2,045	2,240
1945 Net Additions	(296)	(296)
TOTAL	$ 36,749	$ 58,362

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 371 - STRUCTURES AND IMPROVEMENTS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 4,056	$ 10,434
1918	863	-
1920	1	-
21	46	-
22	-	-
23	2	-
24	494	667
1925	1,517	1,235
26	31	39
27	954	21
28	133,507	230,105
29	27,295	47,471
1930	2,396	-
31	1,855	2,647
32	-	
33	-	
34	-	
1935	1,058	1,647
36	598	1,008
37	14,625	20,637
38	668	914
39	4,979	5,293
1940	347	437
41	14,489	17,022
42	36,473	40,689
43	1,272	1,410
44	1,330	1,512
1945 Net Additions	(842)	(842)
TOTAL	$ 248,014	$ 382,346

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -31-
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 372 - OFFICE FURNITURE AND EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 2,654	$ 4,095
13	1,008	2,163
14	761	1,428
1915	183	239
16	400	638
17	793	1,129
18	116	129
19	981	996
1920	1,217	907
21	572	512
22	1,034	1,315
23	2,964	2,973
24	3,070	3,184
1925	1,511	1,657
26	542	650
27	2,619	3,301
28	4,942	5,814
29	4,862	5,892
1930	21,754	27,113
31	2,377	3,511
32	2,714	4,214
33	793	1,230
34	3,607	4,781
1935	3,082	4,658
36	3,327	4,866
37	10,109	12,160
38	8,030	8,773
39	6,247	6,935
1940	10,749	11,773
41	7,867	7,960
42	2,836	2,591
43	75	71
44	622	592
1945 Net Additions	672	672
TOTAL	$ 115,090	$ 138,922

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -32-
BARED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 373 - TRANSPORTATION EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1933	$ 4,446	$ 6,053
34	2,707	3,500
1935	341	459
36	2,277	3,099
37	6,479	8,223
38	2,190	2,265
39	12,335	14,987
1940	5,028	5,897
41	17,128	18,780
42	697	701
43	-	-
44	-	-
1945 Net Additions	3,037	1,314
TOTAL	$ 56,665	$ 65,278

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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GENERAL PLANT

ACCOUNT NO. 374 - STORES EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1928	$ 2,638	$ 2,721
29	6,174	7,227
1935	230	246
39	31	31
1940	-	-
41	849	794
42	3,987	4,064
1945 Net Additions	50	50
TOTAL	$ 13,959	$ 15,133

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 375 - SHOP EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 1,946	$ 2,688
13	-	-
14	89	114
1918	4	3
19	-	-
1920	19	16
1926	77	95
27	403	477
28	1,636	2,567
29	3,172	3,804
1930	42	57
31	3,583	5,272
32	20	31
33	-	-
34	-	-
1935	159	167
36	6	8
37	139	235
38	115	164
39	7,336	6,819
1940	10,476	10,066
41	999	1,002
42	261	262
43	196	186
44	699	700
1945 Net Additions	384	384
TOTAL	$ 31,761	$ 35,117

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 376 - LABORATORY EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 5,078	$ 5,751
13	831	925
14	3,003	4,096
1915	237	295
16	70	148
17	453	356
18	943	712
19	748	677
1920	828	981
21	432	445
22	232	263
23	2,456	2,519
24	3,439	3,620
1925	2,493	3,767
26	251	293
27	178	213
28	3,164	3,718
29	2,888	3,038
1930	3,428	4,336
31	684	963
32		
33	100	142
34	396	522
1935	1,931	2,117
36	1,791	2,492
37	513	538
38	2,089	2,095
39	3,197	3,650
1940	2,225	2,457
41	2,562	2,268
42		
43		
44	1,077	994
1945 Net Additions	1,470	1,469
TOTAL	$ 49,187	$ 55,860

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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GENERAL PLANT

ACCOUNT NO. 377 - TOOLS AND WORK EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 22,299	$ 29,047
13	6,113	8,011
14	2,016	2,797
1915	103	143
16	90	93
17	116	92
18	206	181
19	1,115	1,857
1920	733	952
21	388	395
22	262	304
23	5,799	5,395
24	2,979	2,807
1925	7,614	7,762
26	326	351
27	10,472	12,730
28	9,726	10,857
29	5,969	7,090
1930	14,576	18,411
31	990	1,342
32	10	15
33	170	254
34	1,718	2,315
1935	1,024	1,348
36	8,408	11,146
37	1,923	1,928
38	1,744	1,836
39	1,217	1,176
1940	4,138	3,733
41	4,521	4,151
42	2,136	1,845
43	231	139
44	-	-
1945 Net Additions	(497)	(1,279)
TOTAL	$ 118,635	$ 139,224

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -37-
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 378 - COMMUNICATION EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 10,440	$ 18,350
13	1,725	3,867
14	1,405	3,154
1915	21	33
16	218	235
17	30	19
18	762	1,900
19	359	487
1920	7,018	7,080
21	169	392
22	268	445
23	10,758	17,698
24	3,227	5,623
1925	9,103	12,016
26	589	949
27	668	347
28	4,118	6,542
29	2,237	3,408
1930	1,147	2,140
31	1,153	2,380
32	2,974	5,428
33	506	1,234
34	4,001	5,762
1935	3,064	4,501
36	12,326	15,563
37	5,299	6,712
38	2,094	2,636
39	728	885
1940	7,259	8,408
41	1,566	1,778
42	4,082	4,467
43	5,724	6,123
44	272	280
1945 Net Additions	(341)	(341)
TOTAL	$ 104,969	$ 150,511

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 379 - MISCELLANEOUS EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 21	$ -
13	-	-
14	-	-
1915	430	941
1920	37	-
21	-	-
22	-	-
23	-	-
24	1,814	1,567
1925	1,148	142
26	12,036	16,322
27	145	151
28	-	-
29	260	338
1937	172	241
38	257	241
39	319	352
1940	-	-
41	-	-
42	1,897	1,636
43	308	291
44	168	156
1945 Net Additions	(1,344)	(1,344)
TOTAL	$ 17,668	$ 21,034

PENNSYLVANIA WATER & POWER CO.
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 393 - DONATIONS IN AID OF CONSTRUCTION

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1937	$ (3,374)	$ (3,374)
TOTAL	$ (3,374)	$ (3,374)

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

INTANGIBLE PLANT

ACCOUNT NO. 301 - ORGANIZATION

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31 1945
Total Organization	$ 3,332	$ 3,332*

*Original Cost - Not Trended

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

INTANGIBLE PLANT

ACCOUNT NO. 303 - MISCELLANEOUS INTANGIBLE

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Total Miscellaneous Intangible Plant	$ 5,668	$ 5,668*

*Original Cost - Not Trended

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 340 - LAND AND LAND RIGHTS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Total Land and Land Rights	$ 1,909,136	$ 2,528,645

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND

COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -43-

BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 341 - CLEARING LAND AND RIGHTS-OF-WAY

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 6,699	$ 28,610
13	1,343	6,048
14	1,472	5,946
1915	-	-
16	-	-
17	30	88
18	-	-
19	-	-
1920	46	-
21	-	-
22	-	-
23	-	-
24	4,738	8,355
1925	75	212
26	-	-
27	-	-
28	-	-
29	-	-
1930	-	-
31	43,098	106,985
32	16,978	44,609
33	3	10
34	18,525	39,199
1935	-	-
36	78	-
37	29,875	56,465
38	3,281	6,209
39	7,290	10,755
1940	3,083	4,357
41	-	-
42	-	-
43	-	-
44	-	-
1945 Net Additions	None	None
TOTAL	$ 136,614	$ 317,848

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 342 - STRUCTURES AND IMPROVEMENTS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 123,313	$ 432,816
13	2,612	9,502
14	29,708	78,701
1915	90	358
16	471	1,521
17	11,370	27,060
18	24,295	66,069
19	3,364	5,710
1920	4,339	8,019
21	845	1,505
22	901	1,945
23	6,289	13,034
24	899	917
1925	1,495	2,544
26	876	1,348
27	9,381	13,616
28	1,445	2,369
29	4,095	5,952
1930	7,872	12,208
31	29,871	51,528
32	23,001	40,130
33	7,610	14,133
34	5,090	9,742
1935	899	1,477
36	205	262
37	19,759	29,053
38	24,281	32,410
39	2,100	2,801
1940	112	170
41	3,246	3,793
42	11,429	12,548
43	312	325
44	-	-
1945 Net Additions	3,366	3,366
TOTAL	$ 364,941	$ 886,932

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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TRANSMISSION PLANT

ACCOUNT NO. 343 - STATION EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 218,789	$ 540,447
13	38,157	91,116
14	71,038	164,489
1915	1,689	3,183
16	7,689	15,240
17	24,234	59,486
18	37,561	88,804
19	5,674	12,145
1920	11,981	26,855
21	15,202	26,944
22	18,991	46,787
23	29,808	61,779
24	13,210	20,149
1925	10,580	19,480
26	11,976	21,237
27	765	1,373
28	562	226
29	58,192	87,463
1930	2,910	2,407
31	12,067	21,738
22	53,092	60,336
33	879	1,655
34	18,716	25,468
1935	1,701	1,540
36	585	667
37	4,058	5,281
38	23,354	28,958
39	894	1,141
1940	2,007	2,368
41	3,921	4,054
42	12,160	14,387
43	2,940	3,132
44		
1945 Net Additions	697	(2,461)
TOTAL	$ 716,071	$ 1,457,874

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 344 - TOWERS AND FIXTURES

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912 and prior years	$ 130,081	$ 374,937
13	12,428	35,350
14	83,611	263,401
1915	-	
16	15	25
17	566	923
18	-	-
19	1	-
1920	216	359
21	292	387
22	83	160
23	53	86
24	111,017	169,161
1925	8,800	15,256
26	-	
27	217	397
28	-	
29	-	
1930	-	
31	238,359	514,495
32	69,797	148,041
33	4,963	11,594
34	157,009	326,022
1935	292	667
36	-	
37	290,548	506,073
38	32,932	54,899
39	16,470	24,357
1940	855	1,213
41	7,640	9,785
42	3,095	3,562
43	220	249
44	-	
1945 Net Additions	2,336	2,336
TOTAL	$ 1,171,896	$ 2,463,735

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO. 345 - POLES AND FIXTURES

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	-	
1938	491	937
1945 Net Additions	-	
TOTAL	$ 491	$ 937

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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TRANSMISSION PLANT

ACCOUNT NO. 346 - OVERHEAD CONDUCTORS AND DEVICES

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 110,706	$ 153,558
13	5,582	14,408
14	58,474	93,192
1915	-	-
16	1,303	3,035
17	86,292	79,891
18	686	1,672
19	191	-
1920	-	-
21	134	193
22	-	-
23	-	-
24	41,145	48,105
1925	1,400	1,346
26	1,007	1,147
27	-	-
28	111	102
29	5,053	2,504
1930	4,673	6,459
31	345,152	452,413
32	94,272	135,966
33	972	1,722
34	115,023	182,133
1935	1,101	1,826
36	7,617	12,134
37	246,096	304,704
38	12,425	16,550
39	23,327	27,389
1940	15,233	18,548
41	15,978	17,285
42	17,150	18,103
43	547	602
44	-	-
1945 Net Additions	25,465	25,465
TOTAL	$ 1,237,115	$ 1,620,452

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

TRANSMISSION PLANT

ACCOUNT NO 349 - ROADS AND TRAILS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 5,649	$ 20 904
13	257	1 003
14	252	922
1915	178	423
16	-	-
17	-	-
18	72	43
19	124	223
1920	1,786	2 907
21	1,907	3 066
22	57	74
23	264	470
24	240	377
1925	-	-
26	-	-
27	-	-
28	-	-
29	165	279
1930	-	-
31	5 388	9 629
32	5 256	11 724
33	-	-
34	3 266	4 885
1935	-	-
36	594	1 224
37	4 167	5 761
38	-	-
39	-	-
1940	-	-
41	-	-
42	-	-
43	-	-
44	-	-
1945 Net Additions	(334)	(334)
TOTAL	$ 29,288	$ 63,580

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -50-
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 371 - STRUCTURES AND IMPROVEMENTS

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 178	$ 446
13	-	-
14	48	153
1915	-	-
16	-	-
17	-	-
18	20	-
19	814	1,132
1920	199	-
21	13	15
22	93	189
23	1,531	2,962
24	-	-
1925	-	-
26	-	-
27	692	1,376
28	64	72
29	-	-
1930	-	-
31	995	2,041
32	497	1,033
33	243	347
34	-	-
1935	1,014	1,880
36	-	-
37	-	-
38	-	-
39	-	-
1940	-	-
41	322	341
42	-	-
43	-	-
44	-	-
1945 Net Additions	221	221
TOTAL	$ 6,944	$ 12,208

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 372 - OFFICE FURNITURE AND EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 504	$ 909
13	94	136
14	318	501
1915	98	139
16	278	423
17	700	894
18	86	82
19	209	188
1920	158	98
21	10	8
22	771	1,064
23	146	155
24	172	175
1925	125	133
26		-
27	15	17
28	198	356
29	153	270
1930	-	
31		
32		
33		
34	20	28
1935	10	15
36	125	178
37	-	-
38	-	-
39	-	-
1940	-	-
41	-	
42	-	
43	-	-
44	26	25
1945 Net Additions	None	None
TOTAL	$ 4,216	$ 5,794

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 52
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 373 - TRANSPORTATION EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1931	$ (1,485)	$ (1,485)
1937	410	452
1945 Net Additions	None	None
TOTAL	$ (1,075)	$ (1,033)

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

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GENERAL PLANT

ACCOUNT NO. 374 - STOPES EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1922	$ 187	$ 375
23	277	963
1934	766	838
1938	27	27
1945 Net Additions	-	
TOTAL	$ 1,257	$ 2 203

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

-51-

GENERAL PLANT

ACCOUNT NO. 375 - SHOP EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ -	$ -
13	-	-
14	4	5
1920	1	1
21	-	-
22	12	13
23	839	1,268
24	-	-
1925	-	-
26	-	-
27	-	-
28	71	84
1945 Net Additions	None	None
TOTAL	$ 927	$ 1,371

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 376 - LABORATORY EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ -	$ -
1925	159	94
1937	82	79
1945 Net Additions	None	None
TOTAL	$ 241	$ 173

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

GENERAL PLANT - MARYLAND

ACCOUNT NO. 377 - TOOLS AND WORK EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1912	$ 299	$ 351
13	92	187
14	374	1,233
1915	35	49
16	118	118
17	374	249
18	338	252
19	634	988
1920	355	341
21	346	522
22	454	550
23	163	306
24	513	547
1925	-	-
26	92	93
27	-	-
28	-	-
29	660	730
1930	-	-
31	-	-
32	212	213
33	-	-
34	-	-
1935	116	141
36	-	-
37	-	-
38	1,613	1,650
39	-	-
1940	-	-
41	131	117
42	102	88
43	-	-
44	-	-
1945 Net Additions	(103)	(103)
TOTAL	$ 6,918	$ 8,622

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945 -57-
BASED UPON TREND FACTORS

GENERAL PLANT

ACCOUNT NO. 378 - COMMUNICATION EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC 31, 1945
Year		
1912	$ 980	$ 2,891
13	118	346
14	-	-
1915	-	
16	-	
17	3,007	2,720
18	-	-
19	-	-
1920	41	40
21	72	86
22	1,126	1,352
23	148	157
24	1,100	1,350
1925	1,573	599
26	1	1
27	-	-
28	51	57
29	1,215	2,533
1930	1,367	2,917
31	1,728	4,475
32	455	1,459
33	706	1,667
34	1,760	3,081
1935	643	1,480
36	470	1,050
37	18,680	23,030
38	553	726
39	884	1,308
1940	2,036	1,875
41	550	686
42	30	34
43	376	413
44	317	341
1945 Net Additions	613	613
TOTAL	$ 40,600	$ 57,287

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

-58-

GENERAL PLANT

ACCOUNT NO. 379 - MISCELLANEOUS EQUIPMENT

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31 1945
Year		
1942	$ 12	$ 4
1945 Net Additions	(12)	(4)
TOTAL	$ 0	$ 0

SUSQUEHANNA TRANSMISSION CO. OF MARYLAND
COST OF CONSTRUCTING PROPERTY AS OF OF DEC. 31, 1945
BASED UPON TREND FACTORS

-59-

GENERAL PLANT

ACCOUNT NO. 393 - DONATIONS IN AID OF CONSTRUCTION (CREDIT)

ITEM	ACTUAL ORIGINAL COST OF SURVIVING PROPERTY	TRENDED CONSTRUCTION COST AS OF DEC. 31, 1945
Year		
1932	$ (590)	$ (590)
1939	(15,363)	(15,363)
1945 Net Additions	0	0
TOTAL	$ (15,953)	$ (15,953)

EXHIBIT 32.

[22252]

CHAS. T. MAIN, INC.
Architects—Engineers
201 Devonshire Street
Boston, 10, Mass.

F. M. GUNBY
W. F. UHL
A. W. BENOIT
MARCUS K. BRYAN
R. A. MONCRIEFF
W. M. HALL

Industrial Plants
Textile Mills
Paper Mills
Steam Power
Water Power
Foundations
Valuations
Cable Address
Chasmain, Boston

April 10, 1946

PENNSYLVANIA WATER & POWER COMPANY

and

SUSQUEHANNA TRANSMISSION COMPANY OF MARYLAND

OUTLINE OF ESTIMATING PROCEDURE SUBSTITUTE AND REPRODUCTION PLANT COSTS

As of December 31, 1945

In developing the cost as of December 31, 1945, for the physical properties of Pennsylvania Water & Power Company and Susquehanna Transmission Company of Maryland, as shown in the attached summary, two methods were used in determining the final cost. The first method utilized trend factors to adjust actual original cost to December 31, 1945, and the second involved a new estimate of the cost of a new "Substitute Plant" with unit costs as of December 31, 1945. The first method was applied to all physical property as described in a separate report, and

the second to those portions of the property where modern practices in design and operating procedure might have brought about some degree of obsolescence.

SUBSTITUTE PLANT

The major items included in the Substitute Plant are the hydro-electric development, the steam plant, the electrical equipment serving outgoing transmission lines at Holtwood, the double circuit 66 kv transmission line from Holtwood to Highlandtown, and the Highlandtown Substation. Three plans are attached showing general plans and sections of the proposed substitute plant. In the case of the steam and hydro plants certain necessary items are not included in the Substitute Plant but are retained at original cost or trended original cost. These include all Land and Land Rights, the [22253] (page 2) railroad relocation, the operators' village, the river coal plant and equipment, and all roads, trails, and bridges. Trended original costs were used for Transmission Roads, Trails, and Bridges. A more detailed reference to these items is made in the following description of Substitute Plant items.

HOLTWOOD SUBSTITUTE HYDRO PLANT

The substitute hydro plant is similar in design to Safe Harbor and other recent plants. The dam is located on the same axis as the existing dam and differs slightly from it except for length of spillway and the inclusion of a crest gate in the new design. The selection of the same site for the dam removed many of the uncertainties from the estimate of foundations, resulting in a more accurate estimate than is ordinarily possible. The length of free crest on the existing dam is 2368 feet with a 14 ft log sluice section, while the substitute dam has a free crest length slightly shorter and a 50 ft crest gate section as shown on the General Plans and Sections attached hereto. The new crest and gate section provide for a maximum discharge of 1,200,000 cubic feet per second with headwater at elevation

188 which is approximately equal to the present discharge capacity at that elevation.

In the design of the substitute power house full advantage is taken of modern developments in hydraulic turbine and generator design. The substitute plant has four main generating units instead of the original ten. The normal rating of each hydraulic turbine is 35,100 horsepower at 51 ft net head. The generators consist of three 25 cycle machines with a rating of 27,500 kva, or 25,500 kw, at .925 power factor and one 60 cycle machine with a rating of 30,000 kva, or 25,500 kw, at .85 power factor. These four units give the plant a normal capacity of 102,000 kw in the main units. The turbines are of the adjustable 5-blade propeller type which provide for high efficiency under all operating conditions.

Two Station Service Units are also provided, which are rated at 1000 kva or 750 kw at .75 power factor. The turbines for these units are vertical Francis type units with a normal rating of 1050 hp at 51 ft net head.

The arrangement of the power house, skimmer wall, deflection wall and tail race is much the same as in the present plant except that the power house length is materially reduced through elimination of six units.

Equipment design for the power house follows conventional present-day practice and besides the Generating Units themselves includes head gates, draft tube gates, operating cranes, trash racks, draft tube unwatering pumps, power house crane and [22254] (page 3) miscellaneous tools and devices.

The power house itself has concrete substructure, intake and electrical bay with the superstructure constructed of brick with structural steel frame. The roof of the electrical bay is designed to support step-up transformers for outgoing transmission lines and the power house roof is used to support substation steelwork for the outgoing lines.

Main switching control and protection equipment up to the low tension terminals of the step-up transformers

is included in the substitute hydro-plant estimate as is the 25/60 cycle frequency converter. The estimate for switching and control includes a double bus arrangement for both 25 cycle and 60 cycle sections. Control and switching for generators, outgoing lines, frequency converter, station service and steam plant circuit is provided.

The frequency converter is a 31,250 kva, 25/60 cycle, synchronous-synchronous type machine rated at 25,500 kw at 0.81 power factor. The rating of the machine is determined by load requirements on both the 25 and 60 cycle systems correlated with the main generator size and output.

Transformers and high voltage switchgear are described under the Transmission system.

COMPARISON WITH PRESENT HYDRO

The property replaced, consisting of the present dam, deflection wall, skimmer wall, power house and bulkhead section, is of similar nature but of earlier design. The major difference is in the power house and equipment. The present power house measures 173 feet by 510 feet in plan whereas the substitute power house would be 102 feet by 372 feet. The housing over the intake makes an appreciable difference in width since it is eliminated in the substitute design and the reduction in the number of units reduces the length materially. The width for the substitute power house includes the electrical bay on which the new outdoor transformers are to be placed. These factors all operate to reduce the substitute power house cost as compared with the trended reproduction cost as indicated below.

Power House Cost—December 31, 1945

Substitute Plant	$5,501,738
Trended Reproduction	$7,837,311

The second major difference in the substitute hydro plant lies in the equipment. The ten original units were installed between 1910 and 1924 and range in size from 10,000 kw to 12,000 kw. [22255] (page 4) Their total ac-

tual capacity operating at full load is 103,500 kw. The substitute generators are rated at 102,000 kw for the main units and 1,500 kw for the station service, making the total capacity equal to the present plant, or 103,500 kw. However, the new equipment would be more efficient and the total capacity reached with a flow of 28,500 cubic feet per second as compared to 31,500 cubic feet per second required to reach full capacity in the present plant.

The frequency converter installation in the present plant is 12,000 kw, or equal in size to the two 60 cycle generators. In other words, total available 60 cycle capacity with one unit out of service would be 24,000 kw. This situation is duplicated in the substitute plant which has one 25,500 kw unit and one 25,500 kw frequency changer. With either of these out of service, the 60 cycle capacity of the plant would be 25,500 kw or just slightly more than provided at present.

The total cost of equipment to be installed in the substitute power house is also materially reduced because of the decrease in the number of units installed in spite of the fact that the adjustable blade units are inherently more expensive than the older Francis type as indicated below.

Hydro Plant Equipment Costs—December 31, 1945

Substitute Plant	$ 9,158,831
Trended Reproduction	$12,346,739

PRESENT ITEMS RETAINED

Items of the original hydro plant which are retained in the 1945 cost at trended reproduction or original cost are:

Land	Original Cost
Railroad Relocation	Trended Cost
Operators' Village	Trended Cost
Roads, Railroads and Bridges	Trended Cost

The railroad relocation, the operators' village, and roads, railroads and bridges are not estimated in the sub-

stitute plant because no functional obsolescence can be found and their reconstruction today would follow the original pattern in all material aspects.

[22256] (page 5)

For the Hydro Plant substitute plant estimates represent $21,962,564 and trended reproduction costs $7,016,989 of the total estimated cost as of December 31, 1945 of $28,979,553.

HOLTWOOD SUBSTITUTE STEAM PLANT

The estimate for the substitute steam plant covers a single unit station of the same capacity as the present plant. Two separate buildings are provided as at present, one housing the steam turbine and boiler and the other housing the coal preparation plant. Both have concrete foundations, steel frame and brick exterior walls. The substitute structures are located in approximately the same sites as the present plant.

The main generating unit is a 25,000 kw, 13,800 volt, 60 cycle turbo-generator using steam at 650 lb per square inch pressure and 825 degrees throttle temperature. The electrical end is rated at 29,400 kva, allowing for 25,000 kw at .85 power factor. The steam end is gaged to carry a maximum load of 26,500 kw and this amount could be carried by the unit as long as the power factor is .90 or better.

The boiler is a Stirling type bent tube unit, rated at 275,000 lb of steam per hour and capable of delivering a maximum of 300,000 lb per hour when steam for heating and melting ice is in demand. Air heater and economizer are provided for maximum efficiency as are all the usual boiler auxiliaries including automatic combustion control. A Cotterell electrostatic precipitator is installed on the boiler house roof for fly ash collection.

Condensing water for the plant is taken from the pond above the dam through a screen house and intake tunnel.

The water is returned to the pond through a discharge tunnel so arranged as to prevent recirculation.

The coal handling and preparation equipment in the substitute plant provides for receiving coal from the River Coal Plant (included in the trended reproduction estimate) in a track hopper. Equipment is provided at the hopper to transfer the coal to the storage yard through a skip hoist and drag scraper. Storage of the wet coal in the yard for a time tends to reduce the moisture content and consequently makes the drying operation easier.

When the coal is reclaimed from storage it is delivered to two 500-ton wet coal bunkers. From these main storage bunkers the coal is delivered to two small 25-ton bunkers which feed the two dryers. The rotary type dryers are designed to reduce the moisture content of the coal from 20% to 2%. After the coal leaves the dryers it is carried through conveying and weighing equipment to two pulverizing mills designed to reduce the coal to a fineness suitable for burning. The pulverized coal is delivered from the mills through a transport pump and 5 inch steel pipe to the 100-ton pulverized coal bunker in the boiler room.

[22257] (page 6)

Auxiliaries for the steam plant include a compressed air system, fire protection system, power house crane, elevator in the boiler house and miscellaneous small items.

The electrical system at the steam plant is relatively simple, consisting only of the necessary controls at the turbine cables for delivering the generator output to the hydro plant, control cables and steam plant auxiliary equipment switching and control. The generator operates at 13,800 volts and is tied in to the system on the 13.8 kv, 60 cycle bus in the hydro plant. There is no 13.8 kv switching in the steam plant. The generators are excited by direct connected main and pilot exciters, with an emergency tie to the spare exciter in the hydro plants. All main electrical controls for the generator are likewise located in the

hydro plant. Electrical equipment is provided in the steam plant for plant auxiliaries. A central switchgear group is provided in the steam station and the coal preparation plant. Local groups are also provided in the steam station, strategically situated for operation of the auxiliary equipment, but these are kept to a minimum in the coal preparation plant on account of the severe operating conditions with respect to dust and heat. The type of switching equipment used is the modern fully enclosed unit construction. Other electrical items included consist of the necessary power and control wiring for plant auxiliaries, a d-c system for the coal feeders, grounding and lighting.

COMPARISON WITH PRESENT PLANT

The present steam plant has two units presently rated at 26,000 kw, operating at 350 lb per square inch pressure and 550° temperature at the throttle. Sufficient steam capacity is provided in three boilers to carry 26,000 kw. Because of the reduction from two units to one unit and from three boilers to one boiler, the size of the power house is reduced from 146 ft x 119 ft to 127 ft x 72 ft.

The increase in boiler and turbine pressure makes possible a reduction in the total amount of steam required from 375,000 lb per hour to 300,000 lb per hour.

The comparative cost of the structures and equipment in the present plant and the substitute plant are as shown below:

Comparative Cost—December 31, 1945

	Structure	*Equipment*
Substitute Plant	$1,666,117	$3,575,975
Trended Reproduction	2,006,810	4,139,851

These figures include the dryer and pulverizer building which do not differ greatly in the present and substitute plants.

[22258] (page 7)

The coal drying equipment and the puverizing equipment in the substitute plant is similar to the most modern equipment in the present plant.

ITEMS RETAINED AT TRENDED COST

The River Coal Plant is the only item in the original design for which no substitute plant is estimated. This consists of dredges, steam boats, tug boats, barges and their auxiliaries, together with the shore installation near the steam plant. The shore installation consists of a coal washing plant for separation of the coal from the sand and silt dredged up with it.

SUBSTITUTE TRANSMISSION PLANT

The intent of the substitute transmission plant is to evaluate an economical substitute for that portion of the transmission property which might indicate obsolescence to a sufficient degree to warrant investigation, as to the feasibility of replacement in accordance with modern practice. The elements of property coming under this classification are the Holtwood-Baltimore lines and the substation equipment at each end of these lines.

HOLTWOOD SUBSTATION

The substitute transmission substation at Holtwood consists of step-up transformers and other station equipment serving the Holtwood-Baltimore lines as well as other high tension lines out of Holtwood. While the obsolescence in transmission plant may be considered as involving primarily the Holtwood-Baltimore connection, the changes required for this purpose, together with the extensive changes involved in the substitute hydro plant at Holtwood, make it desirable to provide a substitute for all substation equipment at that location.

In the proposed arrangement the transformers are located on the roof of the electrical bay, similar to the

arrangement at the Safe Harbor plant. The high tension switching structure is mounted on the roof of the generator room. The switching arrangement includes no high tension circuit breakers, as the transformers are associated with specific lines and all load switching is done on the low-tension side except in emergencies. This follows the company's current practice for the past several years and also that of Safe Harbor. The low tension switchgear required for this purpose is included in the cost of the hydro plant.

COMPARISON WITH PRESENT PLANT

The major changes made in the substitute plant as compared with the existing plant are as follows:

The indoor 70 kv oil switches are eliminated; instead, air-break switches are substituted as they will provide equivalent switching service at lower cost.

[22259] (page 8)

Nine 3-phase power transformers, now located indoors, stepping up the 25 cycle power to 66 kv for transmission to Baltimore and Lancaster, are replaced by outdoor transformers, two banks stepping up power to 110 kv for transmission to Baltimore, and one 3-phase transformer stepping up to 66 kv for transmission to Lancaster. Little fundamental change is made in the 60 cycle arrangement. There is some adjustment in the sizes of transformers. There is also some change in the design of most of the transformers, particularly the 25 cycle units, to make use of modern developments such as inert gas atmosphere and air blast equipment for the higher loadings. Water cooling is eliminated.

HIGHLANDTOWN SUBSTATION

At Highlandtown a complete substitution is proposed for all property associated with transmission of power, except land. The storage and meter test facilities and the

garage located at this point therefore remain unchanged. The new substation facilities consist of an outdoor 110 kv switching structure with two transformer banks stepping down to 13.8 kv, and a low tension switchhouse containing the 13.8 kv switchgear, control switchboards, and service facilities. These replace the present 8 three-phase transformers which are all indoors, the indoor 70 kv switchgear, and the low tension switchgear which is inadequate to properly handle the short circuit requirements of the present system. The number of high tension circuits is reduced due to the use of larger transformer banks possible with modern designs and the use of two lines from Holtwood instead of four. The number of low tension feeder circuits increases somewhat because some feeders are now doubled up on the same circuit on account of limited space for switching facilities. The more adequate low tension switchgear permits elimination of the current limiting reactors now required. The spray pond and transformer water cooling equipment are also eliminated in the new design by the use of self-cooled transformers with air blast equipment for the higher loadings.

HOLTWOOD-BALTIMORE LINES

The transmission lines between Holtwood and Baltimore are completely revised in the substitute layout. The present four 66 kv circuits are replaced by two 110 kv circuits. The present four circuits are run in vertical arrangement on two tower lines on a common right of way. The two substitute lines are run in flat arrangement on separate tower lines, also on a common right of way which is wider than that for the present lines. The route is assumed to be the same as that traversed by the present lines. Overhead ground wires and underground counterpoise are included in the substitute lines, following the company's practice. In view of the numerous interconnections the substitute lines are deemed to provide reliability and serviceability substantially equivalent to that originally pro-

vided by the existing lines. By operating at higher voltage with somewhat larger conductors the substitute lines will have a smaller power loss, thereby improving both the operating revenue and the effective system capacity. Assuming unity power factor on the Holtwood end of the lines, the losses [22260] (page 9) on the proposed circuits will be approximately 48% of the losses over the existing lines with a nominal load of 75,000 kw.

OTHER LINES

There is a portion of the Gunpowder transmission line now located on a portion of the same right of way at the Baltimore end of these lines. The costs used for the substitute lines disregard this condition, on the assumption that it is irrelevant to the problem and would not materially alter the overall cost picture. The company owns and operates a number of other transmission lines in both Pennsylvania and Maryland. As these are considered fully adequate for present requirements no substitution is planned for any of them. The relocation of transformers at Holtwood would require some rearrangement of the Holtwood terminations of some of these lines but no cost allowance has been included in our estimates for this as it would not substantially affect the value of the property.

OTHER SUBSTATIONS

There are also a number of other substations and switching stations which the company owns and operates. No substation plant has been figured for these as they are considered adequate and sufficiently modern.

SOURCE OF UNIT COSTS AND QUANTITIES

For the major items of equipment in the substitute plant such as hydraulic turbines, generators, turbo-generator unit, boiler transformers, and other substantial items letters were obtained from manufacturers giving the price of the equipment in question. In other cases, prices on smaller items of equipment were obtained from manufac-

turers' representatives by telephone or from published price lists of the manufacturers.

For field construction unit costs of recent projects including some of the Tennessee Valley Authority costs on recent projects and the prices per unit of the Wolf Creek, Table Rock and Center Hill projects, where unit prices covering direct labor and material costs were not available from current operations, unit prices were built up from material costs and prevailing wage rates applicable to the Holtwood area and finally compared with Safe Harbor cost giving consideration to increase in cost trends.

Quantities were estimated from the General Plans and Sections of the proposed substitute plant. These quantities could be checked against original quantities in some cases and the results are sufficiently accurate so that a large contingency allowance for quantity overrun is not necessary.

[22261] (page 10)

TRENDING OF DEC. 31, 1940 COSTS TO DEC. 31, 1945

Most of the costs for the substitute plant were originally estimated as of Dec. 31, 1940. This was primarily because of the fact that no major construction of this nature was carried out between 1940 and 1945. The one exception to this is the steam plant equipment and its installation which is priced at Dec. 31, 1945 because of the difficulty of obtaining equipment costs as of 1940. Trend factors for the large equipment items in the steam plant are also at or near unity in any event and the number of comparable sales of equipment of this type in that period was small so that pricing of these items as of 1945 proved desirable.

The trend factors applied to the remainder of the substitute plant were developed from actual labor rates and material costs prevailing in the area on the two dates. Each account was analyzed to determine the percent labor and material costs involved, the division between common

and skilled labor and the type of material involved. From these facts and the material and labor costs combined trend factors (covering both material and labor) were developed. Direct labor and material cost for the substitute hydro plant increased 21% from Dec. 31, 1940 to Dec. 31, 1945. The corresponding figure for the substitute transmission plant of both companies was 16%. These compare with an increase in the Engineering News Record Construction Cost Index of 29.5% for the same period. Most of the substitute steam plant was not trended in this manner so no corresponding figure is available for it.

INDIRECT COST AND COMPANY EXPENSE

In all cases in the estimate for the substitute plant the unit prices used in the detailed estimate include only direct labor and material costs. Direct labor cost includes allowance for necessary overtime and payroll charges for social security, workmen's compensation, etc. Contractor's expenses and fee and other indirect costs of construction incurred by the contractor in carrying out the work are not included in the unit prices. These indirect costs amount to 18.65 percent for the hydro plant, 15.25 percent for the steam plant and 15.4 percent for the transmission plant. These percentages are applied and added to the direct labor and material cost.

In addition to the above certain expenses are incurred directly by the company because of the construction which are not covered by unit prices or indirect construction. These expenses include, legal expense, administration, field engineering, office engineering and design, accounting and purchasing, office supplies and expenses and preliminary operation. These total 10.85 percent for the hydro plant, 13.4 percent for the steam plant and 8.9 percent for the transmission plant and are applied and added to the direct labor and material costs.

[22262] (page 11)

The third item not included in direct cost is that covering contingencies. In this estimate the allowance is not as large as is usual in an estimate made from preliminary plans because foundation conditions are known at the present plant, therefore removing some of the uncertainties. The allowance for contingencies is 8.5 percent for the hydro plant, 7.5 percent for the steam plant, and 6.5 percent for the transmission plant.

These percentages are also applied and added to direct labor and material and a sub-total obtained covering direct cost of construction, indirect construction costs, company engineering supervision and expenses and contingencies. To this sub-total is added the final item covering interest and taxes during construction while the money is invested but as yet not capable of producing a return. The allowance for interest and taxes is 6.0 percent for the hydro plant, 3 percent for the steam plant and 3.1 percent for the transmission plant. These percentages are applied and added to the sub-total referred to above for the final cost as of December 31, 1945. The allowance for interest is based on a rate of 6% and construction periods ranging from a little over a year for the steam plant to 2½ years for the hydro plant.

In the determination of the amount of indirect costs and company expense we have been guided by the company's experience at Safe Harbor. A detailed explanation of these costs as experienced by the company is included in Estimate of Constructing and Reproducing the Entire Physical Properties as of December 31, 1945 by Chas. T. Main, Inc.

PENNSYLVANIA WATER & POWER COMPANY
and
SUSQUEHANNA TRANSMISSION COMPANY OF MARYLAND
SUMMARY
SUBSTITUTE AND REPRODUCTION PLANT COSTS
AS OF DECEMBER 31, 1945

	1 Trended Reproduction Cost as of Dec. 31, 1945	2 Amount to be Replaced by Substitute Plant	3 Amount of Trended Reproduction Cost Retained	4 Estimated Cost of Substitute Plant	5 Total Cost as of Dec.31,1945
Pennsylvania Water & Power Company					
Intangible Plant	$ 790,803	$ -	$ 790,803	$ -	$ 790,803
Steam Plant					
310 Land & Land Rights	2,000	-	2,000	-	2,000
311 Structures & Improvements	2,067,055	2,006,810	60,245	1,666,117	1,726,362
312 Boiler Plant Equipment	2,580,059	2,271,291	308,768	1,893,286	2,202,054
314 Turbo-Generator Units	1,221,425	1,221,425	-	1,024,144	1,024,144
315 Accessory Electric Equipment	586,152	548,357	37,795	503,554	541,349
316 Misc. Power Plant Equipment	379,734	98,778	280,956	155,001	435,957
Total Steam Plant	$ 6,836,425	$ 6,146,661	$ 689,764	$ 5,242,102	$ 5,931,866
Hydro Plant					
320 Land & Land Rights	$ 5,292,428	$ -	$ 5,292,428	$ -	$ 5,292,428
321 Structures & Improvements	9,409,241	7,837,311	1,571,930	5,501,738	7,073,668
322 Reservoirs, Dams & Waterways	7,675,794	7,675,794	-	7,301,995	7,301,995
323 Hydraulic Turbines & Generators	9,030,608	9,030,608	-	6,571,954	6,571,954
324 Accessory Electric Equipment	2,977,842	2,977,842	-	2,216,053	2,216,053
325 Misc. Power Plant Equipment	338,289	338,289	-	370,824	370,824
326 Roads, Railroads & Bridges	152,631	-	152,631	-	152,631
Total Hydro Plant	$34,876,833	$27,859,844	$ 7,016,989	$21,962,564	$28,979,553

	1 Trended Reproduction Cost as of Dec. 31,1945	2 Amount to be Replaced by Substitute Plant	3 Amount of Trended Reproduction Cost Retained	4 Estimated Cost of Substitute Plant	5 Total Cost as of Dec.31,1945
Pennsylvania Water & Power Company					
Transmission Plant					
340 Land & Land Rights	$ 1,498,575	$ -	$ 1,498,575	$ 6,214	$ 1,504,789
341 Clearing Land & Rights of Way	235,282	17,807	217,475	18,433	235,908
342 Structures & Improvements	558,466	34,279	524,187	7,204	531,391
343 Station Equipment	3,890,451	1,961,053	1,929,398	1,719,391	3,648,789
344 Towers & Fixtures	1,964,770	281,178	1,683,592	283,414	1,967,006
345 Poles & Fixtures	14,673	-	14,673	-	14,673
346 Overhead Conductors & Devices	1,266,021	119,213	1,146,808	92,462	1,239,270
349 Roads & Trails	58,362	-	58,362	-	58,362
Total Transmission Plant	$ 9,486,600	$ 2,413,530	$ 7,073,070	$ 2,127,118	$ 9,200,188
General Plant	$ 1,000,041	-	$ 1,000,041	-	$ 1,000,041
Total Pennsylvania Water & Power Co.	$52,990,702	$36,420,035	$16,570,667	$29,331,784	$45,902,451

	1 Trended Reproduction Cost as of Dec. 31, 1945	2 Amount to be Replaced by Substitute Plant	3 Amount of Trended Reproduction Cost Retained	4 Estimated Cost of Substitute Plant	5 Total Cost as of Dec.31,1945
Susquehanna Transmission Co.of Maryland					
Intangible Plant	$ 9,000	-	$ 9,000	-	$ 9,000
Transmission Plant					
340 Land & Land Rights	2,528,645	-	2,528,645	47,255	2,575,900
341 Clearing Land & Rights of Way	317,848	49,835	268,013	71,740	339,753
342 Structures & Improvements	886,932	707,107	179,825	383,384	563,209
343 Station Equipment	1,457,874	1,396,028	61,846	1,621,204	1,683,050
344 Towers & Fixtures	2,463,735	777,575	1,686,160	959,050	2,645,210
345 Poles & Fixtures	937	-	937	-	937
346 Overhead Conductors & Devices	1,620,452	416,198	1,204,254	336,776	1,541,030
349 Roads & Trails	63,580	-	63,580	-	63,580
Total Transmission Plant	$ 9,340,003	$ 3,346,743	$ 5,993,260	$ 3,419,409	$9,412,669
General Plant	$ 70,672	$ -	$ 70,672	$ -	$ 70,672
Total Susquehanna Transmission Company of Maryland	$ 9,419,675	$ 3,346,743	$ 6,072,932	$ 3,419,409	$ 9,492,341
Grand Total Pennsylvania W & P Co.and Susquehanna T.Co. of Md.	$62,410,377	$39,766,778	$22,643,599	$32,751,193	$55,394,792